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Original Research

Evaluation of the clinical characteristic of psychiatric patients who are among the risk groups in the COVID-19 pandemic

Pınar Mutlu[1], Demet Gulec Oyekcin[2], Arzu Mirici[1], Uğur Gönlügür[1]
[1] Department of of Chest Diseases
[2] Department of Psychiatry, Çanakkale 18 Mart University , Çanakkale, Turkey

Abstract
Aim: The pandemic caused by COVID-19 has been a major concern for public health worldwide. Traditional medical practices need to be adapted quickly to meet the needs of vulnerable patients due to the COVID-19 outbreak. One of these patient groups is the mentally ill. Although COVID-19 itself affects mental health, this study aimed to investigate the clinical characteristics of COVID-19 patients who were previously diagnosed with mental illness.
Material and Methods: Patients older than 18 years of age with COVID-19 pneumonia, PCR positive or negative, thoracic CT compatible with COVID-19 pneumonia, and who also had been diagnosed with psychiatric disease between 1 April - 1 October 2020 were included in the study. Psychiatric diagnoses of the patients, drugs they used, places they lived, PCR results, CT results, comorbidities, the treatment of COVID-19, and the final status of the patients were evaluated.
Results: Between the specified dates, the number of patients with COVID-19 with psychiatric disease was 37 (28.24%) out of 131. The average age of patients with COVID-19 was 56.63±11.25 years, and the average length of stay in the hospital was 5.57±1.52 days. There were 35 (94.6%) patients living in a nursing home. There were 26 patients (70.3%) with a previous history of psychiatric illness, and 23 of them (62.2%) had psychotic disorders. During the treatment period, 27 (73.0%) of the patients received multiple pharmacotherapies, and atypical antipsychotic drugs (51.4%) were mostly prescribed.
Discussion: As a result, in our study, we determined that living in nursing homes, having a psychiatric disorder, and taking multiple pharmacotherapies due to this psychiatric disorder increase the possibility of getting COVID-19.

Keywords
COVID-19, Psychiatric Disorder, Nursing Home, Antipsychotic

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Corresponding Author: Pınar Mutlu, Kepez Hamidiye Mah., Rauf Denktaş Cad., Konakkale Sitesi, A1, D:15, Merkez, Çanakkale, Turkey.
E-mail: pinarmutlu78@yahoo.com P: +90 505 262 95 29
Corresponding Author ORCID ID: https://orcid.org/0000-0002-7496-0026

Introduction

COVID-19, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which emerged in Wuhan, China at the end of 2019, spread worldwide, causing the pandemic [1]. Multiple risk factors have been identified as serious consequences of COVID-19 [2]. These factors include age over 65 years and the presence of chronic obstructive pulmonary disease asthma, cardiovascular disease, hypertension, diabetes, chronic kidney disease, obesity, malignancy, or anti-inflammatory biological agents [2, 3]. COVID-19 is essentially considered a respiratory disease; most of the guidance and studies have focused on such physical symptoms and their management.

Existing medical comorbidities and old age are associated with severe disease and high mortality rate [3]. Mental illness itself is associated with both high mortality as well as daily habits, lifestyle, socioeconomic status, which can affect clinical outcomes and comorbidity prognosis of COVID-19 [4]. In the COVID-19 pandemic, the negative effects were exacerbated because of the lack of mental health services that were already difficult to carry out. [5]. However, the psychological effects of COVID-19, from short-term boredom and loneliness due to quarantine, to long-term symptoms of anxiety, depression, and post-traumatic stress have been described [5, 6]. In addition, when factors such as loneliness, stigma, and misinformation on social media are added, healthy people are also significantly affected negatively [6-8]. Although enough studies have been done on the psychiatric disorders that occur as a result of the COVID-19 outbreak, the relationship between pre-existing psychiatric disease and the COVID-19 outbreak has not been adequately illuminated. This study aimed to investigate the clinical characteristics of patients diagnosed with psychiatric illness who received COVID-19 treatment between 1 April - 1 October 2020.

Material and Methods

The study was carried out retrospectively in XXXXX XXXX University Hospital between 1 April - 1 October 2020. This study was conducted in accordance with the tenets of the Declaration of Helsinki, and written informed consent was obtained from all subjects. Ethics committee approval for the study was received from the XXXXX XXXXX University Clinical Research Ethics Committee (20.10.2021, Approval No. 2011-KAEK-27/2021-E.2000066204). Patients over 18 years of age who were diagnosed with COVID-19 pneumonia, PCR positive or negative, thorax CT compatible with COVID-19 pneumonia, and who had been diagnosed with a psychiatric disease were included in the study. Throughout the specified period, 37 of 131 patients diagnosed with COVID-19 met the specified criteria and were included in the study. Psychiatric diagnoses of the patients, drugs they used, place of residence, PCR results, CT results, comorbidities, COVID-19 treatment applied, and the latest status of the patients were included as potentially important factors.

Statistical Analyses

The SPPS 25 statistical package program (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.) was used to evaluate data, which expresses variables using mean ± standard deviation, percentage and frequency values. The variables were evaluated after checking the preconditions for normality and homogeneity of variances (Shapiro-Wilk and Levene's test). Categorical data were analyzed with Fisher's Exact Test and Chi-Square test. In cases where the expected frequencies were less than 20%, an evaluation was made with the "Monte Carlo Simulation Method" to include these frequencies in the analysis. The significance level of the tests was taken as $p < 0.05$ and $p < 0.01$.

Results

Between the specified dates, the number of patients with COVID-19 with psychiatric disease was 37 (28.24%). The average age of psychiatric patients with COVID-19 participating in the study was 56.63±11.25 years and the average length of stay in the hospital was 5.57±1.52 days. There were 12 (32.4%) female patients and 25 (67.6%) male patients. In the latest status, 32 (86.5%) of the patients followed were discharged, 10 patients (10.8%) were taken to the intensive care unit, and 1 patient died. General characteristics of psychiatric patients were similar to the general patient population (Table 1).

Demographic characteristics of psychiatric patients with COVID-19 are shown in Table 2. There were 35 (94.6%) patients living in a nursing home. There were 26 (70.3%) patients with a previous history of psychiatric illness, and 23 of them (62.2%) had psychotic disorders. The most common disease throughout the study was schizophrenia (n = 18, 48.6%). During the treatment period, 27 (73.0%) of the patients received multiple pharmacotherapies, and atypical antipsychotic drugs (51.4%) were mostly prescribed.

When the subgroups of psychiatric diseases were compared, there was a statistically significant difference between PCR 2, treatment of COVID-19 pneumonia, admission thorax CT and latest status variables in both patients with a previous diagnosis of psychiatric disease and patients with a current psychiatric diagnosis ($p < 0.05$) (Table 3). The most positive results in terms of PCR 2 results were in those with psychotic diseases in both groups. COVID-19 pneumonia was mostly present in those with psychotic diseases. A patient who died from COVID-19 had neurocognitive impairment.

Table 1. Descriptive statistics of categorical variables of patients

	Psychiatric patients with COVID-19 (n=37)		All patients with COVID-19 (n=131)	
Age, year	56.63±11.25		63.35±16.41	
Hospital Stay, day	5.57±1.52		6.42±3.20	
Gender	n	%	n	%
Female	12	32.4%	57	43.6%
Male	25	67.6%	74	56.4%
Latest Status				
Discharged	32	86.5%	115	87.8%
ICU	4	10.8%	12	9.1%
Dead	1	2.7%	4	3.1%

Discussion

Approximately 1/3 of the patients followed up for this study in the COVID-19 ward had psychiatric illness. Most psychiatric

Table 2. Descriptive statistics of categorical variables of patients with COVID-19

Variables		
	n	%
Where does patient live		
Own House	1	2.7%
In the Nursing Home	35	94.6%
Total	36	97.3%
Who lives with		
Alone	1	2.7%
Nursing Home	36	97.3%
Total	37	100.0%
Psychiatric Disease History		
No	11	29.7%
Yes	26	70.3%
Total	37	100.0%
Current Psychiatric Disorder		
No	7	18.9%
Yes	30	81.1%
Total	37	100.0%
Current Psychiatric Disorders		
Schizoaffective disorder	1	2.7%
Mental Retardation	1	2.7%
Schizophrenia	18	48.6%
Nonorganic Psychosis	1	2.7%
Atypical Psychosis	11	29.7%
Bipolar	2	5.4%
Chronic Schizophrenia	1	2.7%
Alzheimer's	1	2.7%
Total	36	97.3%
Comorbid diseases		
Chronic obstructive pulmonary disease	5	13.5%
Diabetes mellitus	5	13.5%
Hypertension	2	5.4%
Other	4	10.8%
No	21	56.8%
Total	37	100.0%
Multiple Pharmacotherapies		
Yes	27	73.0%
No	10	27.0%
Total	37	100.0%
Drugs		
Antidepressant (SSRI)	1	2.7%
Typical Antipsychotic	6	16.2%
Atypical Antipsychotic	19	51.4%
Total	26	70.3%
Admission PCR		
Negative	10	27.0%
Positive	25	67.6%
Total	35	94.6%
PCR 2		
Negative	9	24.3%
Positive	22	59.5%
Total	31	83.8%
PCR 3		
Negative	13	35.1%
Positive	1	2.7%
Total	14	37.8%

patients were staying in the nursing home, and these patients received multiple pharmacotherapies for their psychiatric disorders.

Mental illness negatively affects the results of many medical conditions [9]. People with mental disorders often have a worse prognosis and a higher mortality rate when diagnosed with any illness than the general population, as accompanying medical comorbidities cannot be screened [10]. There is little evidence that those with any mental illness have susceptibility levels to infection with SARS-CoV-2 or clinical consequences after infection. During the COVID-19 pandemic, individuals with mental illness are at high risk not only because of their illness, but also due to low socioeconomic status, social isolation, and cognitive impairments. At the same time, patients with mental health disorders may be prone to the COVID-19 outbreak due to their comorbid illnesses, smoking habits, or long-term effects of the psychotropic drugs they use. Moreover, psychiatric treatment is a medical concern in COVID-19 [11].

Studies have been conducted to examine the effects of drugs used in the treatment of mental diseases, especially on the respiratory system. In studies of antidepressants, there was no increased risk of respiratory distress and overall mortality in patients with chronic obstructive pulmonary disease (COPD) (including elderly patients) exposed to tricyclic antidepressants (TCAs) and selective serotonin reuptake inhibitors (SSRIs) [12]. However, another recent study found that elderly patients taking SSRIs and serotonin–norepinephrine reuptake inhibitors (SNRIs) have an increased risk of COPD worsening or hospitalization and death from COPD [13]. The onset of pneumonia, especially aspiration pneumonia, can be triggered by psychotropic drugs. Studies have reported that treatment with antipsychotic drugs increases the risk of pneumonia in patients with schizophrenia, Alzheimer's, and dementia [14-16]. In the general population, furthermore, psychotropic drugs may also increase the risk of hospitalization for pneumonia [17,18]. Ishii et al. [19] determined in their study that psychiatric illness and psychotropic medication use did not affect outcomes of pneumonia patients. Also, in the same study, it was observed that psychiatric illness and psychotropic medication use did not change mortality from pneumonia, but the length of hospital stay in these patients was slightly longer compared to other patients [19]. In our study, approximately one-third of the COVID-19 patients followed were psychiatric patients. This high rate indicates that the rate of COVID-19 in those with mental illness is higher than in the general population. Most of the patients in our study were receiving multiple pharmacotherapies and mostly used antipsychotic drugs. We think that multiple pharmacotherapies make it easier to get COVID-19 pneumonia in these patients. However, the length of hospital stay and mortality rates of psychiatric patients who received multiple pharmacotherapies and other COVID-19 patients were similar. In other words, multiple pharmacotherapies made it easier to get COVID-19, but it did not affect his prognosis in the hospital. Although isolation and quarantine are highly effective methods of controlling infectious diseases, they may not be applied all the time or everywhere. It has been difficult to implement it effectively, especially in nursing homes where the elderly and mental patients are staying. In the pre-pandemic studies, it

Table 3. Comparison of Psychiatric Disease and Current Psychiatric Disease with other variables

Variables	Psychiatric Disease History, n (%)			X^2	p	Current Psychiatric Disease, n (%)			X^2	p
	Mood Disorder	Psychotic Disorder	Neurocognitive Impairment			Mood Disorder	Psychotic Disorder	Neurocognitive Impairment		
PCR 2										
Negative	2^a (33.3%)	4^b (66.7%)					7^a (77.8%)	2^b (22.2%)		
Positive	0^a (0.0%)	19^b (100.0%)		6.884	.009*		22^a (100.0%)	0^b (0.0%)	5.226	.022*
Total	2 (8.0%)	23 (92.0%)					29 (93.5%)	2 (6.5%)		
Treatment of Covid19 Pneumonia										
AZT, HDC	$1^{a,b}$ (4.5%)	21^b (95.5%)	0^a (0.0%)			0^a (0.0%)	28^b (96.6%)	1^a (3.4%)		
AZT, FPV	1^a (100.0%)	0^b (0.0%)	$0^{a,b}$ (0.0%)			$0^{a,b}$ (0.0%)	0^b (0.0%)	1^a (100.0%)		
AZT, HDC, FPV	$0^{a,b}$ (0.0%)	0^b (0.0%)	1^a (100.0%)	36.983	.001*	1^a (100.0%)	0^b (0.0%)	$0^{a,b}$ (0.0%)	47.486	.001*
Not treated	0^a (0.0%)	1^a (100.0%)	0^a (0.0%)			0^a (0.0%)	1^a (100.0%)	0^a (0.0%)		
Total	2 (8.0%)	22 (88.0%)	1 (4.0%)			1 (3.1%)	29 (90.6%)	2 (6.3%)		
Admission Thorax CT										
Group1	1^a (16.7%)	5^a (83.3%)	0^a (0.0%)			0^a (0.0%)	6^a (85.7%)	1^a (14.3%)		
Group3	0^a (0.0%)	8^a (88.9%)	1^a (11.1%)			1^a (8.3%)	11^a (91.7%)	0^a (0.0%)		
Group4	1^a (100.0%)	0^b (0.0%)	0^a. b (0.0%)	16.109	.016*	$0^{a,b}$ (0.0%)	0^b (0.0%)	1^a (100.0%)	19.656	.003*
Group5	0^a (0.0%)	10^a (100.0%)	0^a (0.0%)			0^a (0.0%)	13^a (100.0%)	0^a (0.0%)		
Total	2 (7.7%)	23 (88.5%)	1 (3.8%)			1 (3.0%)	30 (90.9%)	2 (6.1%)		
Latest Status										
Discharged	$2^{a,b}$ (8.0%)	23^b (92.0%)	0^a (0.0%)			0^a (0.0%)	30^b (93.8%)	$2^{a,b}$ (6.3%)		
Dead	$0^{a,b}$ (0.0%)	0^b (0.0%)	1^a (100.0%)	26.000	.001*	1^a (100.0%)	0^b (0.0%)	$0^{a,b}$ (0.0%)	33.000	.001*
Total	2 (7.7%)	23 (88.5%)	1 (3.8%)			1 (3.0%)	30 (90.9%)	2 (6.1%)		

was shown that the outbreaks in nursing homes were caused by the delay in the implementation of protection measures and insufficient isolation [20]. Although COVID-19, a droplet-transmitted infection, is easily transmitted in institutional settings such as nursing homes, advanced age and multiple comorbidities are risk factors for deaths from COVID-19. Comorbidities related to severe disease and death from COVID-19 include chronic lung disease, cardiovascular disease, hypertension, diabetes mellitus, chronic kidney disease, cancer, and dementia. In one study, it was reported that 61% of residents living in nursing homes have dementia, 32% have severe cognitive impairment, and 40% have behavioral anxiety related to their dementia (available at: https://www.cihi.ca/en/profile-of-residents-in-residential-and-hospital-based-continuing-care-2018-2019). These behavioral issues are particularly important at a time when physical distance becomes a mandatory social prescription, such as during the COVID 19 outbreak (available at: https://www.cihi.ca/en/dementia-in-canada/dementia-care- across-the-health-system/dementia-in-long-term-care). Indeed, one study reported that around two-thirds of nursing home residents (with a 33% mortality rate) and 16 visitors and 50 staff were infected over a 3 week period [21]. In addition, it has been documented that a significant proportion of COVID-19-related deaths in Italy and Spain are nursing home residents [22]. According to the results of the study published by the Office of National Statistics in the UK, almost half of the deaths in the nursing home due to COVID-19 from the beginning of the pandemic until June 2020 were people who appeared to have dementia or Alzheimer's disease (available at: https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/deathsinvolvingcovid19inthecaresectorenglandandwales/dbetweenweekending20march2020andweekending2april2021) In our study, 95% of the patients with psychiatric disorders were living in a nursing home. It is clear that living in a nursing home is a potential risk for COVID-19. Especially in Europe and the United States, death rates have been high due to the COVID-19 outbreak for those living in nursing homes. Despite the high incidence of COVID-19 in the nursing home in our study, the mortality rates were similar to the general population.

In conclusion, our study determined that living in nursing homes, having a psychiatric disorder, and taking multiple pharmacotherapies due to that psychiatric disorder increase the possibility of getting COVID-19. The results of our study need to be confirmed by larger studies.

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Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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Conflict of interest

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